Chapter 1
Introduction

Purpose

EPA has developed a set of technical guides, including this document, to assist communities, states, municipalities, and the private sector to better address brownfields sites. Currently, these three guides in the series are available:

- *Technical Approaches to Characterizing and Cleaning up Iron and Steel Mill Sites under the Brownfields Initiative*, EPA/625/R-98/007, December 1998.
- *Technical Approaches to Characterizing and Cleaning up Automotive Repair Sites under the Brownfields Initiative*, EPA/625/R-98/008, December 1999.
- *Technical Approaches to Characterizing and Cleaning Metal Finishing Sites under the Brownfields Initiative*, EPA/625/R-98/006, December, 1999.

A supplementary guide contains information on cost-estimating tools and resources for brownfields sites (*Cost Estimating Tools and Resources for Addressing Sites Under the Brownfields Initiative*, EPA/625/R-99-001, January 1999).

EPA has since developed a general guide to provide decision-makers, such as city planners, private sector developers, and others, with a better understanding of the common technical issues involved in assessing and cleaning up brownfield sites.[1] The general guide will be supplemented with site specific profiles that provide further information on specific types of brownfields sites. An understanding of key industrial processes once used at a brownfields site can help the planner identify likely areas of contamination and management approaches. This overview also points to information sources on specific processes or technologies.

The purpose of this guide is to provide decision-makers with:

- An background understanding of common industrial processes formerly used at this type of brownfields site and the general relationship between such processes and potential releases of contaminants to the environment.

- Information on the types of contaminants likely to be present at landfill and illegal dump brownfields sites.

- A discussion of the common steps involved in brownfields redevelopment: Phase I site assessment, due diligence, Phase II site investigation, remedial alternative evaluation, remedy implementation plan development, and remedy implementation.

Background

Many communities across the country have brownfields sites, which the U.S. Environmental Protection Agency (EPA) defines as abandoned, idle, and under-used industrial and commercial facilities where expansion or redevelopment is complicated by real or perceived environmental contamination. Concerns about liability, cost, and potential health risks associated with brownfields sites may prompt businesses to migrate to "greenfields" outside the city. Left behind are communities burdened with environmental contamination, declining property values, and increased unemployment.

[1] Because parts of this document are technical in nature, planners may want to refer to additional EPA guides for further information. *The Tool Kit of Technology Information Resources for Brownfields Sites*, published by EPA's Technology Innovation Office (TIO), contains a comprehensive list of relevant technical guidance documents (available from NTIS, No. PB97144828). EPA's *Road Map to Understanding Innovative Technology Options for Brownfields Investigation and Cleanup*, also by EPA's TIO, provides an introduction to site assessment and cleanup (EPA Order No. EPA/542/B-97/002).

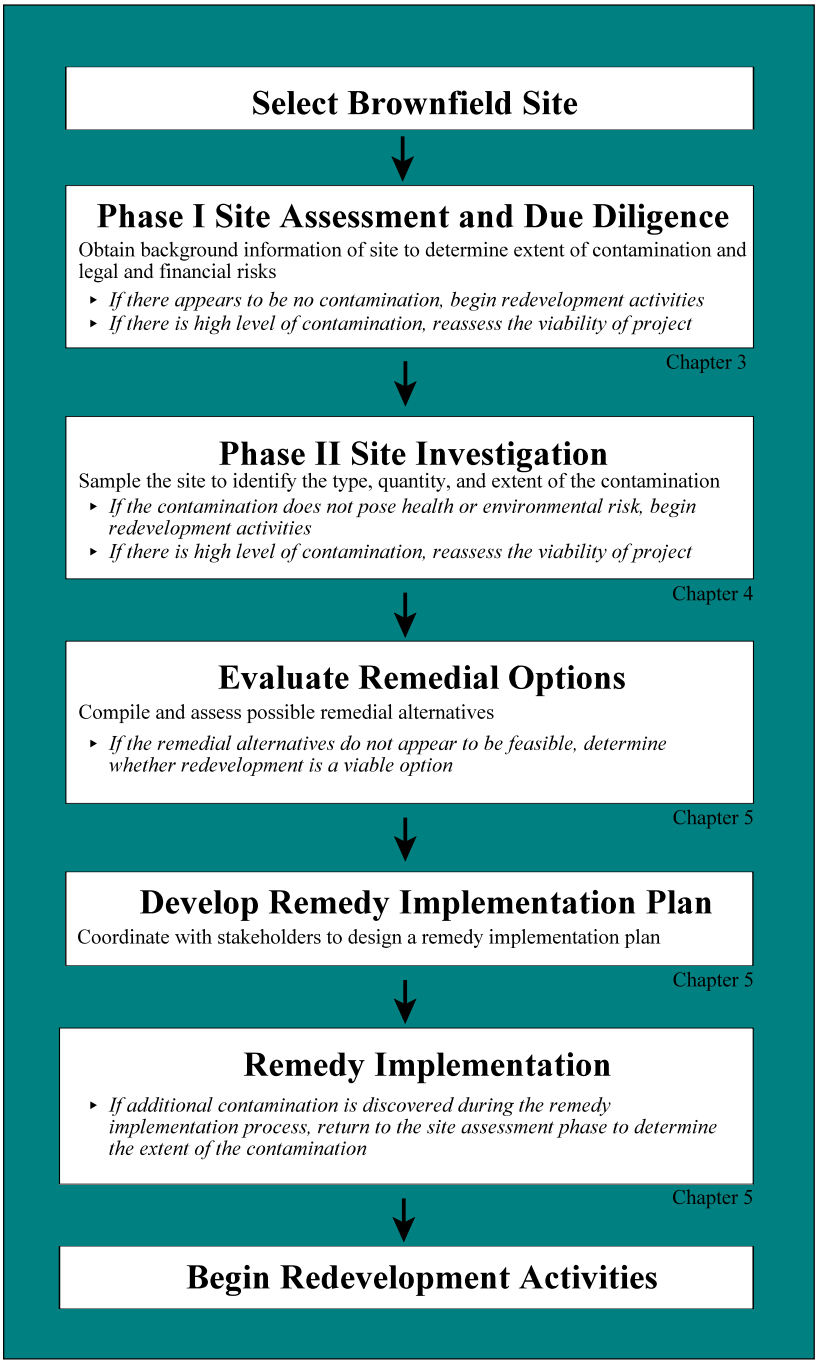

Exhibit 1-1. Flow Chart of the Brownfields Redevelopment Process

The EPA established the Brownfields Economic Redevelopment Initiative to enable states, site planners, and other community stakeholders to work together in a timely manner to prevent, assess, safely clean up, and sustainably reuse brownfields sites.

The cornerstone of EPA's Brownfields Initiative is the Brownfields Pilot Program. Under this program, EPA has funded more than 200 brownfields assessment pilot projects in states, cities, towns, counties, and tribal lands across the country. The pilots, each funded at up to $200,000 over two years, are bringing together community groups, investors, lenders, developers, and other affected parties to address the issues associated with assessing and cleaning up contaminated brownfields sites and returning them to appropriate, productive use. In addition to the hundreds of brownfields sites being addressed by these pilots, many states have established voluntary cleanup programs to encourage municipalities and private sector organizations to assess, clean up, and redevelop brownfields sites.

Typical Brownfield Redevelopment Process

The typical brownfields redevelopment process begins with a Phase I site assessment and due diligence, as shown in Exhibit 1-1. The site assessment and due diligence process provides an initial screening to determine the extent of the contamination and possible legal and financial risks. If the site assessment and due diligence process reveals no apparent contamination and no significant health or environmental risks, redevelopment activities may begin immediately. If the site seems to contain unacceptably high levels of contamination, a reassessment of the project's viability may be appropriate.

A Phase II site investigation samples the site to provide a comprehensive understanding of the contamination. If this investigation reveals no significant sources of contamination, redevelopment activities may commence. Again, if the sampling reveals unacceptably high levels of contamination, the viability of the project should be reassessed. Should the Phase II site investigation reveal a manageable level of contamination, the next step is to evaluate possible remedial alternatives. If no feasible remedial alternatives are found, the project viability would have to be reassessed. Otherwise, the next step would be to select an appropriate remedy and develop a remedy implementation plan. Following remedy implementation, if additional contamination is discovered, the entire process is repeated.

This document is organized as follows:

- Chapter 2 – Municipal Landfills and Illegal Dumps
- Chapter 3 – Phase I Site Assessment and Due Diligence
- Chapter 4 – Phase II Site Investigation
- Chapter 5 – Contaminant Management
- Chapter 6 – Conclusion
- Appendix A – Acronyms
- Appendix B – Glossary
- Appendix C – Testing Technologies
- Appendix D – Cleanup Technologies
- Appendix E – Works Cited